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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,061	01/23/2004	Akihiro Maesaka	09792909-5776	7621

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EXAMINER

MENZ, DOUGLAS M

ART UNIT	PAPER NUMBER
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2891

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/764,061

Applicant(s)

MAESAKA, AKIHIRO

Examiner

Douglas M. Menz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 7-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 13-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 and 13-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kishi et al. (US 6879475).

Regarding claims 1 and 13, Kishi discloses a magnetic memory device comprising:

a first wiring (70, Fig. 14);

a second wiring (60, Fig. 14) intersecting three-dimensionally with said first wiring; and

a storage cell (10, Fig. 14) positioned at an intersecting area of said first wiring and said second wiring for writing/reading information of a magnetic spin (Fig. 14), wherein:

a sidewall portion of said second wiring (60, Fig. 14) electrically connecting to said storage cell has a forward tapered shape having a lower portion having a contact

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angle relative to an upper surface of said storage cell being 45 degrees or more and an upper portion having an angle relative to the upper surface of said storage cell being less than 45 degrees and greater than 0 degrees (Fig. 14 and Col. 14, lines: 49-65).

Regarding claims 2 and 14, Kishi further discloses wherein:

said storage cell is a magnetoresistive effect device including a stacked structure comprising an antiferromagnetic layer, a ferromagnetic fixed layer, a non-magnetic spacer layer, and a ferromagnetic free layer (Fig. 1 and Col. 5 and Col. 14, lines: 49-54).

Regarding claims 3 and 15, Kishi further discloses wherein:

said storage cell is the one in which said non-magnetic spacer layer (2, Fig. 1) is a tunnel barrier made of an insulator (Col. 5);

and said two ferromagnetic layers (1 and 3, Fig. 1) and said non-magnetic spacer layer (2) located between said two ferromagnetic layers form a magnetic tunnel junction (Fig. 1 and Col. 5).

Regarding claims 4-5 and 16-17, Kishi further discloses wherein:

said storage cell is a magnetoresistive effect device including a stacked structure comprising a lower electrode, an antiferromagnetic layer, a ferromagnetic fixed layer, a non-magnetic spacer layer, a ferromagnetic free layer, and a protecting layer in this order from bottom (Fig. 1 and Col. 5 *note layers can be reversed Col. 5, lines: 45-50*).

Regarding claims 6 and 18, Kishi further discloses wherein:

said storage cell is a magnetoresistive effect device including a stacked structure comprising, a lower electrode, an antiferromagnetic layer, a ferromagnetic fixed layer, a non-magnetic spacer layer, a ferromagnetic free layer, a non-magnetic spacer layer, a ferromagnetic fixed layer, an antiferromagnetic layer, and a protecting layer in this order from bottom. (Fig. 7).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-6 and 13-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas M. Menz whose telephone number is 571-272-1877. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DM

*Dany H. 6/12/06*